Technical Addendum to the

Shells: User's Guide

HP 9000

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First Edition: January 1995 (HP-UX Release 10.0)

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Technical Addendum to the *Shells: User's Guide*

This document describes changes made for the HP-UX 10.0 release that affect the *Shells: User's Guide* (B1862-90017). Use this document with the *Shells: User's Guide*.

Note Use the new shell pathname for the examples in the *Shells: User's Guide* (the new pathnames are shown in parentheses on the next pages). For example, for all Bourne shell examples, use `/usr/old/bin/sh`.

For detailed information on the shells, refer to the following manpages:

sh(1)	Overview of the shells
sh-bourne(1)	Bourne shell
csh(1)	C shell
ksh(1)	Korn shell
keysh(1)	Key shell
sh-posix(1)	POSIX shell

For additional information, Hewlett-Packard recommends the following commercial books:

Kornshell Programming Tutorial
Publisher: Addison-Wesley
1-800-822-6339

UNIX C Shell Field Guide
Publisher: Prentice Hall
U.S.: 515-284-6761 or 515-284-6751
International: 201-767-4990

Bourne Shell (/usr/old/bin/sh)

The Bourne shell is obsoleted at the HP-UX 10.0 release and is replaced by the POSIX shell, the new standard shell on HP-UX. Using the POSIX shell gives you continued support and additional advanced features. These features are listed in the POSIX shell description later in this document.

Because the Bourne shell will not be enhanced in the future, it is recommended that you use the POSIX shell. The POSIX shell is an enhanced version of the Bourne shell, so your existing Bourne shell scripts should run under the new POSIX shell with minimal or no changes. However, you might see some differences, such as:

- Positional parameters are saved during a function call.
- Errors in functions will abort the function, but will not abort the script.
- Function lookup is done before the built-in commands.
- Error messages output by the POSIX shell might be different from Bourne shell messages.
- Changing the value of `LC_CTYPE` or `LANG` after the shell has started will not affect the lexical processing of shell commands in the current shell or its subshells.

See *sh-posix*(1) to verify functionality. If you still need to use the Bourne shell, it is available as `/usr/old/bin/sh`.

C Shell (/usr/bin/csh)

There are no new features for the HP-UX 10.0 release.

Korn Shell (/usr/bin/ksh)

There are no new features for the HP-UX 10.0 release.

Key Shell (/usr/bin/keysh)

There are no new features for the HP-UX 10.0 release. However, there are new path names for the following files:

New Path Name	Old Path Name
`/usr/lib/keysh/builtins`	`/usr/keysh/builtins`
`/usr/lib/keysh/$LANG/help`	`/usr/keysh/$LANG/help`
`/usr/lib/keysh/$LANG/keyshrc`	`/usr/keysh/$LANG/keyshrc`
`/usr/lib/keysh/$LANG/softkeys`	`/usr/keysh/$LANG/softkeys`

POSIX Shell (/usr/bin/sh)

The POSIX shell is implemented for the HP-UX 10.0 release as the new standard shell. The POSIX shell replaces the Bourne shell.

Changes made to the POSIX shell for the HP-UX 10.0 release:

- 4-byte EUC support.
- The directory `/bin/posix` and file `/bin/posix/sh` are eliminated.
- The `hash` command becomes a built-in shell command and has the addition of the `-r` option.
- The `export -p` command is fully implemented.
- The built-in command `type` is added.
- The preserved file descriptors 10 and 14 through 20 are moved to the maximum side of the array of available file descriptors.

New, additional features:

- New built-in commands, such as `alias`, `bg`, `fc`, `fg`, `getopts`, `jobs`, `kill`, `let`, `select`, `unalias`, and `whence`.
- The `read` and `print` commands have a `-p` option for co-processes.
- Addition of the `select` command.
- New operators, such as `[[..]]`, `(( ... ))`, `>|`, and `|&`.
- Commands preceded by an explanation mark (!) return the logical negation of the command's exit status.
- New reserved words, such as `!`, `select`, `function`, `[[`, and `]]`.
- Aliases can redefine special built-in commands.
- Addition of parameter substitutions that were allowed in the Bourne shell.
- Support of a one-dimensional array facility.
- Availability of tilde substitutions.
- New parameters set by the POSIX shell.
- Positional parameters are not limited to nine, as with the Bourne shell.
- Integer arithmetic can be performed using the `let` command.
- New input/output operators, such as `>|`, `<>`, `<&p`, and `>&p`.
- Values can be assigned in one step using `readonly` or `export`.
- Availability of symbolic names for signals and traps.
- An environment variable can be passed to a child process even if it is not exported.
- The `for`, `while`, and `until` loops are executed in the current process environment. Assignments made within loops remain effective after the loop completes.
- Addition of job control commands (such as `jobs`, `fg`, and `bg`) to suspend, resume, and control processes executing in the background.
- In-line editing is possible using the `vi` or `emacs` editing commands.
- History capability is available for listing and editing command lines.